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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

06 MAR 2005

Applicant's or agent's file reference T3458-808003WO01	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US03/30033	International filing date *(day/month/year)* 26 September 2003 (26.09.2003)	Priority date *(day/month/year)* 27 September 2002 (27.09.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): B24B 3/26, 28, 32 and US Cl.: 451/48, 349, 453		
Applicant PROFESSIONAL TOOL MANUFACTURING LLC		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
27 April 2004 (27.04.2004)	18 November 2004 (18.11.2004)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Sharon M. Greene for M Rachuba Telephone No. 571-272-4485

Form PCT/IPEA/409 (cover sheet)(July 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US03/30033

I. Basis of the report

1. With regard to the elements of the international application:*

☐ the international application as originally filed.

☒ the description:
pages 1-10 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the claims:
pages NONE, as originally filed
pages 11-14, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the drawings:
pages 1-4, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☐ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination(under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages NONE

☐ the claims, Nos. NONE

☐ the drawings, sheets/~~fig~~ NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*
** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIM[redacted]RY EXAMINATION REPORT

International [redacted]ication No.
PCT/US03/[redacted]

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims	3-6, 9-12, 17, 18	YES
	Claims	1, 2, 7, 8	NO
Inventive Step (IS)	Claims	3-6, 9-12, 17, 18	YES
	Claims	1, 2, 7, 8, 13-16	NO
Industrial Applicability (IA)	Claims	1-18	YES
	Claims	NONE	NO

2. CITATIONS AND EXPLANATIONS

Claims 1, 2, 7 and 8 lack novelty under PCT Article 33(2) as being anticipated by Bernard 5,735,732. Please refer to figures 8, 11 and 12. '732 discloses the claimed invention, including both sharpening and point-splitting ports, the point splitting port comprising the structure as claimed, including the at least one protrusion extending radially from the cylindrical wall to cooperate with a complementary-shaped recess on the chuck to hold the chuck and drill in a desired position. Note the projections shown on **110** figures 11 and 12, and discussed in columns 7, lines 43 through columns 8, lines 13. That '732 allows other movements of the drill being sharpened is moot, as '732 clearly discloses the claimed structure of applicant's invention.

Claims 13-16 lack an inventive step under PCT Article 33(3) as being obvious over Bernard '732 in view of Whipple, 2,426,478. '732 does not disclose how debris is handled. '478, column 10, lines 32-53, teaches providing a collection tube **88, 89** arranged to be inserted into at least one port and forming a seal with the port, and a vented and removable cap **90** attached to the end of the tube opposite the end to be inserted in the port. It would have been obvious to one of ordinary skill to have provided '732 with the debris collection tube and vented and removable cap taught by '478, to allow debris to be removed from the grinding area, thereby preventing damage to the workpiece and excessive wear to the grinding tube.

Claims 3-6, 9-12, 17 and 18 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a centering device comprising a resilient portion of the cylindrical wall and a flange protruding radially inwardly from the resilient portion, a tongue portion, two protrusions, or the debris tube adapted to be connected to a vacuum hose or arranged to form an elbow.

Claims 1-18 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

IPEA/US

Claims:

1. A drill sharpener comprising a housing which encloses a rotatable grinding wheel assembly, the housing having a point-splitting port to facilitate a point-splitting operation upon a multi-flute drill bit to remove material between said flutes, the port comprising a guide feature that maintains a longitudinal length of the bit along a predetermined axial line and at a predetermined angular orientation with respect to said line as said material is removed by the grinding wheel assembly.

2. A drill sharpener as recited in claim 1, wherein said point-splitting port has an opening slightly larger than a barrel of a chuck to be inserted therein, the chuck adapted to hold said bit during said point-splitting operation, and wherein the guide feature cooperates with a surface of the chuck to maintain the bit along said predetermined axial line and at said predetermined angular orientation.

3. A drill sharpener as recited in claim 2, wherein the port further comprises a generally cylindrical wall of the housing and wherein the guide feature comprises a resilient portion of said generally cylindrical wall and a flange protruding radially inwardly from said resilient portion of said wall.

4. A drill sharpener as recited in claim 3, wherein said resilient portion of said wall comprises a tongue element formed in said wall and attached to said wall at one end thereof.

5. A drill sharpener as recited in claim 1, wherein the port further comprises a stop feature that limits further advancement of the bit along the predetermined axial line to limit the amount of said material removed from said bit.

6. A drill sharpener as recited in claim 1, wherein the point-splitting operation is carried out by inserting the bit into the port using the guide feature to maintain the bit in a first orientation while removing a first portion of said material from the bit, removing the bit from the port, and reinserting the bit into the port using the guide feature to maintain the bit in a second orientation that is 180 degrees

opposite the first orientation with respect to the axial line while removing a second portion of said material from the bit.

7. A drill sharpener comprising a housing which encloses a grinding wheel assembly and a chuck adapted to securely retain a multi-flute drill bit, the housing comprising a sharpening port adapted to receive the chuck to present said drill bit to the grinding wheel assembly to sharpen said flutes, the housing further comprising a point-splitting port adapted to receive the chuck to present said drill bit to the grinding wheel assembly to remove material between said flutes, wherein the point-splitting port comprises a guide feature that maintains a longitudinal length of the bit along a predetermined axial line and at a predetermined angular orientation with respect to said line as said material is removed by the grinding wheel assembly during the point-splitting operation.

8. A drill sharpener as recited in claim 7, wherein the point-splitting port has an opening slightly larger than a barrel of the chuck, and wherein the guide feature cooperates with a surface of the chuck to maintain the bit along said predetermined axial line and at said predetermined angular orientation during the point-splitting operation.

9. A drill sharpener as recited in claim 7, wherein the point-splitting port further comprises a generally cylindrical wall of the housing and wherein the guide feature comprises a resilient portion of said generally cylindrical wall and a flange protruding radially inwardly from said resilient portion of said wall.

10. A drill sharpener as recited in claim 9, wherein said resilient portion comprises a tongue element formed in said wall and attached to said wall at one end thereof.

11. A drill sharpener as recited in claim 7, wherein the point-splitting port further comprises a stop feature that limits further advancement of the bit along the predetermined axial line to limit the amount of said material removed from said bit.

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12. A drill sharpener as recited in claim 7, wherein the point-splitting operation is carried out by inserting the bit into the point-splitting port using the guide feature to maintain the bit in a first orientation while removing a first portion of material from between said flutes, removing the bit from the port, and reinserting the bit into the port using the guide feature to maintain the bit in a second orientation that is 180 degrees opposite the first orientation with respect to the axial line while removing a second portion of said material from between said flutes.

13. A drill sharpener comprising:

a chuck adapted to securely retain a multi-flute drill bit;

a housing which encloses a grinding wheel assembly, the housing comprising a sharpening port adapted to receive the chuck to present said drill bit to the grinding wheel assembly to sharpen said flutes and a point-splitting port adapted to receive the chuck to present said drill bit to the grinding wheel assembly to remove material between said flutes; and

a debris collector to collect debris from the grinding wheel assembly, wherein the collector is adapted to be removeably coupled to either one of said ports while the chuck is inserted into the remaining one of said ports.

14. A drill sharpener as recited in claim 13, wherein said debris collector comprises a hollow body and a cap secured at an end of the body opposite an end that interfaces with said ports.

15. A drill sharpener as recited in claim 14, wherein said cap is vented to permit gas to flow therethrough while substantially preventing solid particles of selected size from exiting said cap.

16. A drill sharpener as recited in claim 14, wherein said cap is removable from said body.

17. A drill sharpener as recited in claim 13, wherein the debris collector is further adapted to be connected to a vacuum hose.

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18. A drill sharpener as recited in claim 13, wherein the debris collector forms an elbow so that the collector can be canted downwardly when inserted into said ports.